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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/635,113	08/06/2003	Igor Ivanisevic	09013.0006-00000	2064

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FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER  
LLP  
901 NEW YORK AVENUE, NW  
WASHINGTON, DC 20001-4413

EXAMINER

HO, ALLEN C

ART UNIT	PAPER NUMBER
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2882

DATE MAILED: 11/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/635,113	<b>Applicant(s)</b> IVANISEVIC ET AL.	
	<b>Examiner</b> Allen C. Ho	<b>Art Unit</b> 2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 September 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 7, 11-19, 33, 35, 142 and 155-158 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7, 11-19, 33, 35, 142 and 155-158 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Objections*

1. Claim 14 is objected to because of the following informalities:

Claim 14 recites the limitation "detected characteristic peaks". There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 101*

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 7, 11-19, 33, 35, 142, 155-158 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The claims are directed to a judicial exception; as such, pursuant to the Interim Guidelines on Patent Eligible Subject Matter (MPEP § 2106 (IV)), the claims must have either physical transformation and/or a useful, concrete and tangible result. The claims fail to include transformation from one physical state to another. Although the claims appear useful and concrete, there does not appear to be a tangible result claimed. Merely performing hierarchical cluster analysis would not appear to be sufficient to constitute a tangible result, since the outcome of the performing step has not been used in a disclosed practical application nor made available in such a manner that its usefulness in a disclosed practical application can be realized. As such, the subject matter of the claims is not patent eligible.

*Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 11, 12, 142, and 156 are rejected under 35 U.S.C. 102(e) as being anticipated by Raich (U. S. Pub. No. 2006/0015265 A1).

With regard to claim 142, Raich disclosed a method of analyzing diffraction patterns that comprises: receiving a first diffraction pattern; receiving a second diffraction pattern; receiving a third diffraction pattern (paragraph [0017]); determining a first similarity between the first and the second diffraction patterns based on the characteristic peaks of the first and the second diffraction patterns; determining a second similarity between the first and the third diffraction patterns based on the characteristic peaks of the first and the third diffraction patterns; determining a third similarity between the second and the third diffraction patterns based on the characteristic peaks of the second and the third diffraction patterns (paragraph [0026], lines 10-22); and performing hierarchical cluster analysis on the first, the second, and the third diffraction pattern based on the determined first similarity, the second similarity, and the third similarity (paragraph [0026], lines 10-22).

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With regard to claim 11, Raich disclosed the method of claim 142, wherein determining the similarities based on the peaks comprises: detecting crystalline peaks in the diffraction patterns (crystalline peaks are detected by the diffractometer when the material is crystalline); and matching the diffraction patterns based on the detected crystalline peaks (paragraph [0018]).

With regard to claim 12, Raich disclosed the method of claim 142, wherein determining the similarities based on the peaks comprises: detecting amorphous peaks in the diffraction patterns (amorphous peaks are detected by the diffractometer when the material is amorphous); and matching the diffraction patterns based on the detected amorphous peaks (paragraph [0018]).

With regard to claim 156, Raich disclosed a method of analyzing diffraction patterns that comprising: receiving a first diffraction pattern; receiving a second diffraction pattern (paragraph [0017]); determining a similarity between the first and the second diffraction patterns based on the characteristic peaks of the first and the second diffraction patterns (paragraph [0026], lines 10-22); and performing hierarchical cluster analysis on the first and the second diffraction pattern based on the determined similarity (paragraph [0026], lines 10-22).

### *Claim Rejections - 35 USC § 103*

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 33 and 155 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raich (U. S. Pub. No. 2006/0015265 A1) as applied to claim 142 above.

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With regard to claim 33, Raich disclosed the method of claim 142, wherein the similarity between x-ray diffraction patterns is defined as the sum of the differences in intensities between the two patterns at each  $2\theta$  (paragraph [0018]). However, Raich failed to disclose x-shifting the first diffraction pattern prior to determining the similarity between the first diffraction pattern and the second diffraction pattern and determining the similarity between the first diffraction pattern and the third diffraction pattern.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to x-shift the first diffraction pattern prior to determining the similarity between the first diffraction pattern and the second diffraction pattern and determining the similarity between the first diffraction pattern and the third diffraction pattern, since a person would be motivated to align the first diffraction pattern with the second and the third diffraction patterns to match their  $2\theta$  range.

With regard to claim 155, Raich disclosed the method of claim 33. However, Raich failed to teach that the x-shifting is done automatically.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to x-shift the first diffraction pattern automatically, since a person would be motivated to automate the process.

### ***Response to Arguments***

8. Applicant's arguments filed 14 September 2006 with respect to the drawings have been fully considered and are persuasive. The objection of the drawing has been withdrawn.

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9. Applicant's arguments filed 14 September 2006 with respect to claims 13-19 and 35 have been fully considered and are persuasive. The objections of claims 13-19 and 35 have been withdrawn.

10. Applicant's arguments filed 14 September 2006 with respect to claims 13, 15-19, and 35 have been fully considered and are persuasive. The rejection of claims 13, 15-19, and 35 under 35 U.S.C. 102(e) as being anticipated by Raich (U. S. Pub. No. 2006/0015265 A1) has been withdrawn.

11. Applicant's arguments filed 14 September 2006 have been fully considered but they are not persuasive.

With regard to claim 142, the applicants argue that Raich failed to disclose the use of characteristic peaks. In particular, the applicants point out that Raich disclosed a method that determines the similarities based upon the sum of the squared differences at each  $2\theta$  using unweighted fill patterns. The examiner respectfully disagrees. As noted in MPEP § 2111, although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Claims 142 and 156 recite "determining a similarity between the first and the second diffraction patterns based on the characteristic peaks of the first and the second diffraction pattern". Raich disclosed a method that comprises determine a similarity between diffraction patterns at each  $2\theta$  (paragraph [0026], lines 19-22). Since the diffraction patterns comprise characteristic peaks (paragraph [0026], lines 10-12), it is deemed that this determination is based on characteristic peaks of the diffraction patterns.

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***Conclusion***


12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Ivanisevic *et al.*, J. Phys. Chem. B 109, 7781-7787 (2005).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (571) 272-2491. The examiner can normally be reached on Monday - Friday from 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Allen C. Ho, Ph.D.  
Primary Examiner  
Art Unit 2882

14 November 2006